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Oceans and the law of the sea

Sustainable fisheries, including through the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments

Report of the Secretary-General

Summary

The present report is prepared in response to paragraph 57 of General Assembly resolution 58/14. The report contains information on steps and initiatives taken or recommended to be taken by the international community to improve the conservation and management of fishery resources and other marine living resources with a view to achieving sustainable fisheries and protecting marine ecosystems and biodiversity.

The report is based on information provided by States, relevant specialized agencies, in particular the Food and Agriculture Organization of the United Nations, and other appropriate organs, organizations and programmes of the United Nations system, regional and subregional organizations and arrangements for the conservation and management of straddling fish stocks and highly migratory fish stocks, as well as other relevant intergovernmental bodies and non-governmental organizations.

The report includes a specific consideration of current risks to the marine biodiversity of vulnerable marine ecosystems related to fishing activities and provides, pursuant to paragraph 46 of resolution 58/14, a review of existing conservation and management measures at the global, regional, subregional or national levels that address these issues.

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All fishing activities, as anthropogenic activities in the marine environment, have some impact on marine ecosystems. The report concludes that one of the main tasks of fishery managers is thus to mitigate these impacts while maintaining fishing as a viable economic activity.

The report emphasizes the importance of the full implementation by States of all international fishery instruments, whether legally binding or voluntary, which provide for conservation and management measures and sustainable use of marine living resources. It also invites States to cooperate in all aspects of fishery conservation and management, including the establishment of new regional fisheries management organizations where none exist in a particular region or subregion; apply the precautionary approach and the ecosystem approach; and collect and exchange fishery data and statistics.

The report further points out that regional and subregional fisheries management organizations and arrangements are required, inter alia, to adopt effective conservation and management measures for fishery resources under their competence; improve fishery data to ensure that the best scientific evidence is available; adopt effective monitoring, control and surveillance; and agree on effective decision-making procedures.

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Abbreviations

AIDCP	Agreement on the International Dolphin Conservation Programme
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COFI	FAO Committee on Fisheries
CRFM	Caribbean Regional Fisheries Mechanism
EC	European Community
EEZ	Exclusive economic zone
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GFCM	General Fisheries Commission for the Mediterranean
HELCOM	Baltic Marine Environment Protection Commission
HSTF	High Seas Task Force
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
ICP	United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea
ICRI	International Coral Reef Initiative
IGO	Intergovernmental organization
ILO	International Labour Organization
IMO	International Maritime Organization
IOC	International Oceanographic Commission
IOTC	Indian Ocean Tuna Commission
IPHC	International Pacific Halibut Commission
IPOA	International Plan of Action

IPOA-Capacity	IPOA for the Management of Fishing Capacity
IPOA-Seabirds	IPOA for Reducing Incidental Catch of Seabirds in Longline Fisheries
IPOA-Sharks	IPOA for the Conservation and Management of Sharks
IPOA-IUU	IPOA to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IUCN	World Conservation Union
IUU fishing	Illegal, unreported and unregulated fishing
IWC	International Whaling Commission
LME	Large marine ecosystem
MARPOL	International Convention for the Prevention of Pollution from Ships
MPA	Marine protected area
MCS	Monitoring, control and surveillance
NAFO	Northwest Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North-East Atlantic Fisheries Commission
NGO	Non-governmental organization
NPAFC	North Pacific Anadromous Fish Commission
NPOA	National plan of action
OECD	Organization for Economic Cooperation and Development
OLDEPESCA	Latin American Organization for the Development of Fisheries
RFMO	Regional fisheries management organization
SEAFO	South East Atlantic Fisheries Organization
STCW-F	International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel
SWIOFC	South-West Indian Ocean Fisheries Commission
TED	Turtle excluder device
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN-Oceans	Oceans and Coastal Area Network
WCPFC	Western and Central Pacific Fisheries Commission
WECAFC	Western Central Atlantic Fishery Commission

Introduction

1. The General Assembly, in its resolution 58/14 of 24 November 2003, entitled "Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments", requested the Secretary-General to submit to it a report on current issues affecting marine capture fisheries and on ways and means to achieve sustainable fisheries. In paragraph 46 of that resolution, the Assembly requested the Secretary-General to include in his report a section outlining current risks to the marine biodiversity of vulnerable marine ecosystems related to fishing activities. The present report responds to that request. Part One summarizes developments on the issues raised in the resolution during the period from September 2003 to July 2004. Part Two covers marine biodiversity and vulnerable marine ecosystems in more detail. Parts One and Two are closely related and complement each other.

2. As part of the preparation of the report, on 23 February 2004 the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs circulated a questionnaire ("the questionnaire")[1] to States, regional fisheries management organizations (RFMOs),[2] United Nations bodies and other intergovernmental organizations, and non-governmental organizations, soliciting their inputs on the issues raised in General Assembly resolution 58/14. The questionnaire offered flexibility to respondents regarding the form and amount of information to be provided.

3. By 31 July 2004, the Secretary-General had received responses from 20 States, the European Community (EC),[3] 12 RFMOs, 5 United Nations bodies and other intergovernmental organizations, and 6 NGOs, for which he wishes to express his appreciation. The responses from States and RFMOs on factual points with respect to the implementation of specific fisheries instruments and measures are presented in a tabular summary in annex I. Other responses are summarized as appropriate to illustrate points in the report. Respondents are named only where helpful to illustrate specific legislative or policy steps reported by them.

4. Other sources for the present report include the main report of the Secretary-General on oceans and the law of the sea and its addendum;[4] the report of the Secretary-General on the work of the Consultative Group on Flag State Implementation;[5] the report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (ICP) at its fifth meeting;[6] the report of the third round of informal consultations of States parties to the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (the Agreement);[7] and official web sites.

5. The present report follows the report of the Secretary-General of 9 October 2002[8] and the series of biennial reports of the Secretary-General that preceded it. It also takes full account of the report of the Secretary-General on sustainable fisheries[9] presented to the General Assembly at its fifty-eighth session and should be read in association with that report.

Part One
Review of main developments in areas covered by General Assembly resolution 58/14 from September 2003 to July 2004

I. General observations

6. An underlying reason for the General Assembly's concern about the need to ensure sustainable fisheries is the continued deterioration of marine fish stocks worldwide. The Food and Agriculture Organization of the United Nations (FAO) estimates that 47 per cent of major fish stocks are now fully exploited, 18 per cent are overexploited and 10 per cent are significantly depleted.[10] The failure to maintain fishing within sustainable limits has an impact on the role of fisheries in economic development, poverty alleviation and human health. FAO estimates that fish makes up 16 per cent of the world population's protein intake and provides employment for 35 million full- and part-time fishers, with more than two thirds of both total catch and employment coming from marine capture fisheries. Fishing activities are also associated with a range of impacts on marine ecosystems, particularly vulnerable ecosystems and fragile habitats.

7. The factors contributing to overfishing are interrelated. They include the failure of States fully to implement and enforce the range of international fisheries instruments and related instruments; illegal, unregulated and unreported (IUU) fishing in violation of internationally agreed rules; overcapacity in international fishing fleets; and gaps in data and scientific knowledge to inform fisheries management decisions. An additional cross-cutting factor is the capacity of coastal developing States to implement effective conservation and management measures.

8. The review of developments below takes account of the thematic structure of resolution 58/14 and seeks to present the issues in such a way as to demonstrate some of the links between them.

II. Global fisheries instruments: overview of developments

A. Binding instruments

9. *1982 United Nations Convention on the Law of the Sea (UNCLOS).* The obligations of all States as reflected in UNCLOS, in particular Part V, dealing with the exclusive economic zone (EEZ), and Part VII, section 2, dealing with the conservation and management of the living resources of the high seas, provide the starting point for achieving the long-term conservation, management and sustainable use of all marine living resources. Canada and Lithuania ratified the Convention in the period covered by the present report, bringing the total number of parties to 145.

10. *1992 Convention on Biological Diversity (CBD).* As of July 2004, there are 188 parties to CBD. In 2004, the main development was the adoption of decision VII/5 of the CBD Conference of the Parties, on marine and coastal biodiversity. Provisions of CBD relevant to marine ecosystems are reviewed in Part Two of the present report.

11. *1993 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas*. The Compliance Agreement entered into force in April 2003. Chile accepted the Compliance Agreement in the period covered by the present report, becoming the twenty-eighth State party.

12. *1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*. The ratification of the Agreement by EC and the EU Member States in December 2003 and by Kenya in July 2004 brought the number of parties to the Agreement to 52.

B. Non-binding instruments

13. *2002 Johannesburg Plan of Implementation of the World Summit on Sustainable Development*.[11] The Johannesburg Plan of Implementation calls, inter alia, for the restoration of stocks to maximum sustainable levels by 2015, and for ratification/accession and full implementation of all the instruments referred to in the Plan of Implementation. It also covers ecosystem issues and small island developing States fisheries.

14. *1995 FAO Code of Conduct for Responsible Fisheries (Code of Conduct)*. The implementation of the Code of Conduct was most recently reviewed by the FAO Committee on Fisheries (COFI) at its twenty-fifth session, in February 2003, on the basis of the biennial FAO questionnaire on the Code of Conduct. In 2004, FAO established new web pages on the implementation of the Code of Conduct's four related international plans of action (IPOAs).[12]

(a) *1999 International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds)*. The implementation of IPOA-Seabirds was reviewed by COFI in 2003. The IPOA-Seabirds 2001 target for States to implement national plans of action (NPOAs) for its implementation was not met. As of July 2004, only three respondents[13] had NPOAs in place, with five more in preparation, although in responses to the questionnaire almost all States and most RFMOs endorsed IPOA-Seabirds;

(b) *1999 International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks)*. Implementation of IPOA-Sharks was reviewed by COFI in 2003. The 2001 target for States to implement NPOAs was not met. Four respondents to the questionnaire said they had implemented an NPOA;[14]

(c) *1999 International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity)*. IPOA-Capacity set 2003, and no later than 2005, as the target for implementation of NPOAs. FAO reviewed the implementation of IPOA-Capacity at a technical consultation in June 2004. Only one respondent to the questionnaire has implemented an NPOA;[15]

(d) *2001 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)*. IPOA-IUU set 2004 as the target for the development of NPOAs. FAO reviewed IPOA-IUU in June 2004 (in the same technical consultation that reviewed IPOA-Capacity). Three respondents to the questionnaire confirmed they had implemented an NPOA.[16]

15. *2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem*. The Declaration and the revised 2003 FAO Technical Guidelines on the Ecosystem Approach to Fisheries form part of the Code of Conduct framework.

16. *2003 FAO Strategy for Improving Information on Status and Trends of Capture Fisheries*. The Strategy forms part of the Code of Conduct framework. No particular developments were reported in 2004.

III. Implementation of the Agreement

17. The Agreement is the principal binding fisheries instrument in the UNCLOS framework. Further ratifications and full implementation of the Agreement, which includes ecosystem-related measures reviewed in Part Two of this report, would be a major step towards achieving sustainable fisheries activities in respect of the stocks covered by the Agreement. In the Secretary-General's 2003 report on sustainable fisheries[17] a number of recommendations were made on how to achieve better implementation of its provisions. These are still valid.

18. By paragraph 18 of its resolution 56/13 of 28 November 2001 and paragraph 4 of its resolution 58/14, the General Assembly made the implementation of article 6 of the Agreement, dealing with the precautionary approach, a particular priority. Most responses to the questionnaire showed States and RFMOs making use of the precautionary approach in the design of conservation and management measures. The precautionary approach is particularly relevant to the issues covered by Part Two of the present report.

A. Informal consultations of States parties to the Agreement

19. On 8 July 2004 the Secretary-General convened the third round of informal consultations of States parties to the Agreement, in accordance with the General Assembly's request in paragraph 13 of resolution 58/14. The recommendations to the General Assembly from those consultations are reproduced in annex II below.

20. One of the recommendations provides that the Secretary-General should convene a review conference in accordance with article 36 of the Agreement. Article 36 calls for the convening of a conference four years after the entry into force of the Agreement, which took place on 11 December 2001.

21. The questionnaire invited respondents to suggest issues for consideration by the review conference. The responses fall into five broad areas:

(a) A review of the role of RFMOs, including assessments of possible (i) measures to strengthen existing RFMOs in accordance with article 13 of the Agreement; (ii) whether all stocks covered by the Agreement are now within the competence of RFMOs; (iii) steps to promote wider implementation of the Agreement through RFMOs; and (iv) RFMO implementation of measures in respect of vulnerable species, taking account of article 5 (d) to (g) of the Agreement;

(b) Stronger measures in respect of the requirements of developing States in Part VII of the Agreement. Priorities here include coastal States' technical capacity for enforcement and the use of vessel monitoring systems with real-time reporting;

(c) Scientific assessment of the status of stocks covered by the Agreement;

(d) Self-assessment by States of their performance with respect to the Agreement;

(e) The conservation and management of stocks not covered by the Agreement, in particular discrete high-seas stocks.

22. The responses also suggested that mechanisms for the preparation of the review conference could include pre-conference working groups or expert panels to report on challenges, lessons learned and recommendations for the conference.

23. In addition, the third round of informal consultations of States parties to the Agreement noted that the Government of Canada intends to convene a conference in St. John's, Newfoundland, in May 2005 to discuss issues related to the Agreement. That event is likely to provide a useful opportunity for further exchanges of views on the issues set out above.

B. Relationship between the Agreement and the Compliance Agreement

24. In 2003, both the General Assembly and the FAO Conference called for the implementation of the Agreement and the Compliance Agreement[18] as the principal binding global fisheries instruments capable of ensuring the effectiveness of high-seas fishery conservation and management measures. However, the parties to the two instruments still vary greatly.

25. The complementarity between the instruments has been widely recognized.[19] For example, the Compliance Agreement does not provide for such a detailed range of conservation, management and enforcement measures as the Agreement. The Compliance Agreement does, however, apply to all fishing on the high seas, not just straddling and highly migratory fish stocks, and provides for the submission to FAO and sharing of details on all vessels authorized for fishing on the high seas.[20] Of the 27 parties to the Compliance Agreement and 53 parties to the Agreement, only 12 are parties to both.[21]

C. Special assistance to developing countries in the implementation of the Agreement

26. By paragraph 10 of its resolution 58/14, the General Assembly decided to establish an Assistance Fund under Part VII of the Agreement, to be administered by FAO in collaboration with the Division for Ocean Affairs and the Law of the Sea. The purpose of the Fund is to assist developing States in the implementation of the Agreement, to enhance their ability to conserve and manage straddling fish stocks and highly migratory fish stocks and to develop their own fisheries for such stocks; to enable their participation in high-seas fisheries for such stocks, including by facilitating access to such fisheries subject to articles 5 and 11 of the Agreement; to facilitate their participation in subregional and regional fisheries management organizations and arrangements; and to meet the costs involved in any proceedings for the settlement of disputes to which they may be parties. FAO and the United

Nations are finalizing procedures to make the Fund operational in the very near future.

D. Strengthening of regional fisheries management organizations

27. Article 8 (5) of the Agreement provides for the establishment of RFMOs where none exist. Article 13 provides for the strengthening of existing RFMOs. Since the Secretary-General's 2003 report on sustainable fisheries,[17] there have been a number of developments within RFMOs. These are reviewed in the present report, as they contribute to strengthening the framework established by the Agreement. RFMOs also have a wider role in tackling IUU fishing, particularly for non-parties to the Agreement. This review of developments covers only RFMOs with regulatory capacity, not the work in RFMOs whose main function is the provision of technical advice.

28. *South East Atlantic Fisheries Organization (SEAFO).* SEAFO held its first meeting from 9 to 13 March 2004 in Namibia.[22] The accession of EC to the Agreement in December 2003 means that SEAFO is the first RFMO whose members are all parties to the Agreement.

29. *Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC).* The Convention establishing WCPFC entered into force on 19 June 2004. WCPFC will manage highly migratory fish stocks in its Convention area. Its first meeting will take place in December 2004.[23]

30. *General Fisheries Commission for the Mediterranean (GFCM).* The 1997 revised Convention establishing GFCM entered into force on 29 April 2004. The revised Convention reflects some provisions of the Agreement, including application of the precautionary approach. The Convention covers all living marine resources in its Convention area, although in respect of tuna the Commission generally adheres to measures adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT).

31. Existing RFMOs have also been strengthened by new members joining during 2004. For example, the Philippines, Norway and Nicaragua joined ICCAT. The Philippines joined the Indian Ocean Tuna Commission (IOTC). Indonesia, the Philippines and South Africa are expected shortly to become cooperating non-members of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), following the creation of that membership status by CCSBT in 2004.[24]

32. One of the issues relating to RFMOs covered in the Secretary General's report of 2003 on sustainable fisheries[17] was effective decision-making. Article 10 (j) of the Agreement provides that RFMOs should agree on decision-making procedures that facilitate the adoption of conservation and management measures in a timely and effective manner. In 2004, FAO has published a review of decision-making in RFMOs.[25]

E. Cooperation and coordination among regional fisheries management organizations

33. Cooperation and coordination among RFMOs, especially those with competence for related stocks and/or overlapping geographical competence, offers mutual benefits and potential cost savings through harmonized approaches. Key areas for cooperation include data collection, monitoring and enforcement.

34. The main forum for coordination among RFMOs at present is the biannual meeting of RFMOs hosted by FAO in conjunction with the biennial COFI meeting.[26] The next meeting will take place in February 2005, immediately before or after the next session of COFI.

35. Representatives of RFMOs have been invited to meetings of ICP and to the informal consultations of States parties to the Agreement. In almost all cases, invitations have been declined because of lack of resources.

IV. Illegal, unregulated and unreported fishing

36. IUU fishing in all its forms presents the main obstacle to achieving sustainable fisheries both in areas under national jurisdiction and on the high seas. IPOA-IUU is the main international instrument dealing with the problem. IPOA-IUU is a non-binding instrument, but many of its provisions have binding effect through global or regional fisheries agreements, including the Agreement and the Compliance Agreement. The full implementation of these instruments is therefore an important element of action against IUU fishing. As will be seen in Part Two below, action on IUU fishing is also essential for the protection of vulnerable marine ecosystems and biodiversity.

37. The General Assembly has made the full implementation of IPOA-IUU a particular priority.[27] In June 2004, participants at ICP again called for action on IUU fishing.[28] As part of the preparation for the June 2004 FAO Technical Consultation to review progress and promote implementation of IPOA-IUU, FAO carried out an in-depth survey of the implementation of IPOA-IUU by States and RFMOs.[29] The Technical Consultation produced a number of recommendations addressed to different actors. The following is a brief summary of the main recommendations:

(a) The need for FAO to continue to use funds to assist developing States with the implementation of IPOA-IUU and to collect and assess comprehensive data on IUU fishing, and in particular to study and assess fishery management aspects of the "genuine link" between the flag State and the vessel flying its flag, as provided for in Article 91 of UNCLOS;

(b) The need for flag States, at the national level or acting through RFMOs, to adopt measures to prevent the re-flagging of vessels to States that do not comply with the Agreement and the Compliance Agreement, and the need to take steps to implement article VI of the Compliance Agreement by contributing to a global database of vessels authorized to fish on the high seas;

(c) The need for all States to review sanctions against those benefiting from IUU fishing to ensure that there is sufficient deterrent effect, and to work with all stakeholders, including industry, fishing communities, NGOs and State authorities

that are responsible for trade in fish products, to promote the implementation of IPOA-IUU;

(d) The need for RFMOs to share information on the results of measures adopted against IUU fishing, to consider external assessment of the effectiveness of conservation and management measures in place, to ensure full compliance with measures in place by RFMO members and to promote cooperation by non-members.

38. Most of the points raised at the Technical Consultation were also reflected in responses to the questionnaire. In its response to the questionnaire, the International Maritime Organization (IMO) noted the importance of international standards by which flag States ensure the training of fishing crews. The response also noted a possible area for cooperation between FAO and the International Labour Organization (ILO) under article 9 of the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F) relating to education and training for fishing vessel personnel, and recalled that the IMO Assembly had called for the entry into force of the 1993 Protocol to the 1977 Torremolinos International Convention for the Safety of Fishing Vessels and STCW-F.[30] With regard to the special requirements of developing States, IMO capacity-building programmes on flag-State and port-State control also have applications for fisheries monitoring, control and surveillance (MCS) activities. In addition, IMO is developing a voluntary IMO member State audit scheme. IMO and other relevant competent international organizations were invited by the General Assembly, in resolutions 58/14 and 58/240 of 23 December 2003 to study, examine and clarify the role of the "genuine link" in relation to the duty of flag States to exercise effective control over ships flying their flag, including fishing vessels.

39. The convening of expert or technical consultations is part of a series of FAO initiatives related to the implementation of IPOA-IUU. FAO convened an Expert Consultation in September 2003 on fishing vessels operating under open registries and their impact on IUU fishing. In November 2003, FAO held in Zimbabwe the first of a series of regional workshops on the elaboration of NPOAs to implement IPOA-IUU. It will be followed by further workshops in Malaysia and Trinidad and Tobago in October and November 2004 and by workshops in 2005 in locations still to be confirmed.

40. In August 2004, FAO will convene a Technical Consultation to review port-State measures to combat IUU fishing. The IMO Maritime Safety and Marine Environment Protection Committees decided to organize a second session of the Joint FAO/IMO Working Group on IUU Fishing and Related Matters in order to follow up on the 2000 meeting of the Working Group. No date has been set for the meeting.[31]

41. In April 2004, the Organization for Economic Cooperation and Development (OECD) convened a special workshop on IUU fishing activities. FAO and IMO were among United Nations organizations that participated. The workshop looked in particular at economic and social factors that encourage IUU fishing as a profitable activity in current circumstances.

42. Building on the OECD discussions, in June 2004 a new High Seas Task Force (HSTF) was established, with the objective of making proposals to tackle IUU fishing on the high seas.[32] HSTF is led by ministers from Australia, Chile, Namibia, New Zealand and the United Kingdom of Great Britain and Northern Ireland. It is

formally independent of OECD, and will work through four specialist panels looking at legal, scientific, economic and trade, and enforcement and management aspects of IUU fishing. The composition of HSTF reflects a multi-stakeholder approach: it includes representatives of civil society, research institutions and business. It will consult widely in its work and plans to present a final report by February 2006.

43. With regard to collaboration among States against IUU fishing, the General Assembly, in paragraph 21 of its resolution 58/14, encouraged States to consider becoming members of the International Monitoring, Control, and Surveillance Network for Fisheries-Related Activities (MCS Net). MCS Net aims to promote cooperation on the collection and exchange of enforcement information among competent national administrations.[33] Fewer than half of the State respondents to the questionnaire reported that they were making use of the Network.

V. Fisheries by-catch and discards: selected issues

44. Issues related to by-catch and discards and the species affected are reviewed in detail in Part Two below. The following paragraphs summarize developments with respect to particular issues covered by resolution 58/14.

A. Large-scale pelagic drift-net fishing

45. By virtue of resolution 58/14, the General Assembly underlined the continuing importance of compliance with its resolution 46/215 of 20 December 1991 and subsequent resolutions that called upon all members of the international community to ensure that a global moratorium on all large-scale pelagic drift-net fishing is fully implemented on the high seas. Almost all State and RFMO respondents to the questionnaire confirmed that they had implemented the moratorium. However, several NGO respondents reported concerns at some drift-net activity in the Mediterranean. The Division for Ocean Affairs and the Law of the Sea has also received a communication stating that some vessels have been using drift-nets in albacore fisheries in the North Pacific.[34] The 2003 meeting of parties to the Convention for the Conservation and Management of Pollock Resources in the Central Bering Sea also noted reports of drift-net fishing for salmon in the North Pacific.[35]

B. Seabirds

46. FAO has not reported any specific action on the implementation of IPOA-Seabirds since the review at the meeting of COFI in 2003. In 2004, the main development has been the entry into force on 1 February 2004 of the 2001 Agreement on the Conservation of Albatrosses and Petrels. In responses to the questionnaire, the main reason cited by States for the non-implementation of IPOA-Seabirds was lack of technical capacity and lack of data on the basis of which to assess the extent of by-catch of seabirds. Some NGO respondents criticized the voluntary nature of the IPOA as a weakness.

C. Sharks

47. The main characteristics of sharks and the threats to them are reviewed in Part Two below. Resolution 58/14 particularly urged States to implement IPOA-Sharks. The resolution also invited FAO to prepare as soon as practicable a special study on the impact of directed and non-directed fisheries on shark populations and their impact on ecologically related species, taking into account the nutritional and socio-economic aspects of the problem.[36] This has not been possible within the existing FAO work programme, but FAO made a helpful contribution on sharks through its response to the questionnaire.[37]

48. There has been little progress with respect to the conservation and management of sharks since the adoption of the IPOA in 1999. The main FAO activity in 2004 in support of the IPOA has been through information materials. Technical assistance has been provided by FAO to the Marshall Islands, Papua New Guinea and South Africa to help in the preparation of their respective NPOAs.

49. In December 2003, New Zealand and FAO organized a workshop on the Conservation and Management of Deepwater Chondrichthyans in association with the Deep Sea 2003 Conference.[38] The main findings of the workshop included recommendations for priority attention to improved identification guides to assist in accurate data collection; improved data on life histories, reproductive cycles and diet to help understand productivity and ecosystem models; and basic stock structure to understand geographic and depth distributions. The workshop noted that no unique management measures were required for deep-water sharks, but that their increased vulnerability was an argument for application of the precautionary approach as part of ecosystem-based management.

50. At present, FAO does not collect scientific data on shark catches, as IPOA-Sharks provides that collection of this data is a national responsibility. Most States and RFMOs that responded to the questionnaire indicated that they had implemented measures in respect of IPOA-Sharks, but only four respondents[39] have NPOAs in place. Only one State respondent reported having banned directed shark fisheries solely for the purpose of harvesting fins.[40]

51. The conservation of sharks is also on the agenda of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). In 2004, the CITES Working Group on the Biological and Trade Status of Sharks did its own review of IPOA-Sharks, drawing on a report by the World Conservation Union (IUCN).[41] The IUCN survey of implementation of IPOA-Sharks showed progress between 2001 and 2004, with 16 States, including 9 of the world's 18 major shark-fishing nations, having completed shark assessment reports as a step towards NPOAs.

52. In NGO responses to the questionnaire, the importance of shark catch to some small-scale and artisanal fishers was underlined. The need for sustainable management of sharks to provide a continued source of food, employment and income to local communities is explicitly recognized in paragraph 5 of IPOA-Sharks.

VI. Conservation agreements

53. By paragraph 35 of resolution 58/14, the General Assembly drew attention to a number of regional conservation agreements with mandates to conserve specifically non-target species taken incidentally in fishing operations. Most of these instruments relate primarily to activities within EEZs, although some have wider application. The main provisions related to fishing activities in these instruments include fishing gear restrictions and modifications, time and/or area restrictions or closures on fishing, collection of scientific data and provision of advice to fishers. Respondents to the questionnaire expressed support for the conservation agreements relevant to their respective regions. Developments with respect to these instruments are as follows:

(a) *1996 Inter-American Convention for the Protection and Conservation of Sea Turtles and Their Habitats*. The Convention entered into force in 2001. There are nine parties to the Convention, with no new parties in 2004. It covers waters under the jurisdiction of parties in the Pacific, Caribbean and Atlantic and fishing vessels flying the flags of those States on the high seas. Article 4 of the Convention prohibits, inter alia, intentional capture of marine turtles and provides for the reduction of incidental capture, including through the use of turtle excluder devices (TEDs);

(b) *1998 Cooperative Agreement for the Conservation of Sea Turtles of the Caribbean Coast of Costa Rica, Nicaragua and Panama*. This Agreement entered into force in 1998 with the objective of establishing a regional management plan for turtles within the framework of the implementation of the Inter-American Convention. No new developments have been reported in 2004;

(c) *1979 Convention on the Conservation of Migratory Species of Wild Animals (CMS)*. The main provisions of CMS are introduced in the addendum to the Secretary-General's report on Oceans and the law of the Sea.[42] The Agreement mandates the conclusion of further agreements and memorandums of understanding for the conservation and management of species listed in appendix II of the Convention;

(d) *1996 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area*.[43] The Agreement entered into force in 2001. It prohibits deliberate capture of cetaceans and introduces measures to minimize by-catch. One new party (Ukraine) has acceded in 2004;

(e) *1992 Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas*.[44] The Agreement prohibits deliberate capture of cetaceans and introduces measures to minimize by-catch, including through research and management plans. No specific developments have been reported in 2004;

(f) *1999 Memorandum of Understanding concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa*.[45] A comprehensive conservation plan was adopted in 2002. Work since has mostly been project-based, within available resources. No specific developments have been reported in 2004;

(g) *2000 Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia*.[46] The Memorandum of Understanding binds its parties to the

development of conservation and management plans. Bangladesh, Jordan, Oman and Thailand signed the Memorandum of Understanding in 2004;

(h) *2001 Agreement on the Conservation of Albatrosses and Petrels*.[47] Article III.1 (h) of the Agreement specifically supports the implementation of IPOA-Seabirds. The objective of the Agreement is to achieve and maintain a favourable conservation status for albatrosses and petrels wherever they are found, including by application of the precautionary approach. The Agreement implements IPOA-Seabirds within a binding framework, and its article XIV provides for the establishment of a technical arbitration panel for the settlement of disputes. The Agreement entered into force on 1 February 2004. There are currently six parties and five signatories.

VII. Fishing capacity

54. Excess capacity is a key factor leading to IUU fishing and overfishing in general. The June 2004 FAO Technical Consultation on the implementation of IPOA-Capacity[48] confirmed that relatively few States have measures in place to address excess fishing capacity through its implementation.

55. A number of States have nevertheless implemented capacity-reduction programmes. These include vessel buyback programmes,[49] control of access to fisheries, and fiscal and economic measures. Limitations on access to fishing opportunities are also used as a disincentive to the creation of new capacity.

56. RFMOs also play a role in capacity management. For example, in tuna fisheries, the Inter-American Tropical Tuna Commission (IATTC), ICCAT and IOTC have adopted measures to limit the number and capacity of tuna-fishing vessels. IATTC has developed a regional plan for managing capacity. GFCM has set up a pilot workshop on excess capacity in the Adriatic. However, substantive action on capacity remains in general a matter of State competence.

57. There are a number of factors that affect capacity management. First is the continuing creation of new capacity. The FAO Technical Consultation noted, for example, that while tuna-vessel reduction programmes have led to a decrease in large-scale commercial tuna longline vessels, new construction of tuna purse-seine vessels could result in these being used in IUU fishing.[50] The ever-growing construction of new fishing vessels reflects ongoing commercial demand and increasing fishing, in particular for Western and Central Pacific tuna, notwithstanding the pressure on tuna stocks.

58. Second, socio-economic consequences of reducing capacity, in particular the problem of finding alternative employment for fishers, have also slowed down initiatives for reducing capacity, especially with respect to capacity in small-scale fisheries, and particularly in developing coastal States.

59. Third, there are relatively few restrictions on the export of vessels following national capacity-reduction programmes. The EC prohibition on the export of decommissioned capacity as from December 2004 is a positive step in this area.[51]

VIII. Capacity-building: update on regional initiatives

60. By section X, on capacity-building, of its resolution 58/14, the General Assembly highlighted the need to increase the capacity of developing States. The recent developments of particular importance in this respect are set out below.

61. FAO reports that progress has been made in 2004 on collaboration between FAO, the World Bank, the New Partnership for Africa's Development and the World Wide Fund for Nature towards a strategic partnership for a sustainable fisheries intervention fund in the large marine ecosystems of sub-Saharan Africa. The strategic partnership aims to use Global Environment Facility (GEF) funds to implement World Summit on Sustainable Development targets on poverty reduction and fisheries. In June 2004 GEF approved a 15-month project to prepare the partnership brief for the strategic partnership. The partnership brief is expected to propose a budget of $265 million over 10 years.

62. A preparatory meeting for the African Process for the Protection and Development of the Marine and Coastal Environment (fisheries components) took place in June 2002. No further information is available at this time.

63. The Caribbean Regional Fisheries Mechanism (CRFM) is one of a number of initiatives supported by FAO programmes aimed at promoting sustainable fisheries and livelihoods. Current FAO-supported CRFM projects include work on the scientific basis for ecosystem-based management in the Lesser Antilles and capacity-building for an ecosystem approach in the region.

IX. Cooperation within the United Nations system

64. As was noted in the Secretary-General's 2003 report on sustainable fisheries,[17] there is still ample room for improved cooperation and coordination on fisheries within the United Nations system. One example cited is the need for the sharing of information among nominated working-level contact points in the organizations and entities concerned. The establishment in 2004 of the Oceans and Coastal Area Network (UN-Oceans) offers an opportunity to take these and other ideas forward.[52]

65. Another relevant area for cooperation is the collection of data on sustainable fisheries from States and others through questionnaires prepared within the United Nations system. There is currently a duplication in some areas of questions covered in the Division for Ocean Affairs and the Law of the Sea and FAO questionnaires relevant to the implementation of fisheries instruments. There should be closer collaboration in the preparation of questionnaires in future.

Part Two
Current risks to the marine biodiversity of vulnerable marine ecosystems relating to fishing activities and conservation and management measures in place addressing these issues

I. General observations

66. Part Two, which responds to the request in paragraph 46 of General Assembly resolution 58/14, is intended to complement the information provided in the addendum to the main report of the Secretary-General[53] on current risks to the marine biodiversity of vulnerable marine ecosystems beyond national jurisdiction. The following paragraphs are intended as a self-standing analysis, but should be read in association with the addendum, which provides more detail on certain aspects of the implementation of the UNCLOS framework with respect to all vulnerable ecosystems beyond national jurisdiction.

67. Section III below is organized around the categories of impact, including a brief review of the impacts of different types of fishing gear and how technical modifications may mitigate impacts. Section IV reviews conservation and management approaches aimed at mitigating these impacts, including existing measures in place at the global and the regional level.

68. All fishing has some impact on marine ecosystems. Such impacts generally fall into the following four categories, and any number of them may occur at the same time in a given fishery:

(a) A reduction of target fisheries biomass in the ecosystem, which is a consequence of even a sustainable harvest;

(b) Impact on non-target fisheries and by-catch taken in fisheries operations;

(c) Impact on the habitat as a result of the use of destructive fishing gear, including discarded equipment and other marine debris associated with fishing;

(d) Indirect impacts on other species through food-chain effects, including energy transfer through vertical migration of species taken by predators in deeper waters.

69. Within these categories of impact, some of the main "ecosystem effects" of fishing that have been identified include the following: (a) impact on predator-prey relationships, which can cause community structures to shift and not revert to the original condition upon the cessation of fishing pressure; (b) changes to the population size and body size of species, which can lead to a fauna composed of primarily small individual organisms and hence an abundance of species with different life history characteristics; (c) impacts on populations of non-target species; (d) reduction of habitat complexity and disturbance of seabed (benthic) communities; and (e) influence on genetic selection as a result of selective harvesting on the basis of the size or sex of fish, in addition to a real danger of extinction.[54]

70. Fisheries managers and scientists have long understood the importance of ecosystems from the point of view of optimizing fisheries management. This is

particularly applicable in the design of gear and techniques to maximize the efficiency of fishing activities. An important element of the ecosystem approach is a win-win objective: the protection of ecosystems can also be shown to help maintain or increase fisheries production.

71. Part Two of the present report mainly addresses ecosystem impacts of fisheries that are subject to international cooperation arrangements, including all fishing on the high seas, fishing in areas under national jurisdiction for straddling and highly migratory stocks and international cooperation with respect to IUU fishing within EEZs. It should also be noted, however, that most of the ecosystem features most vulnerable to fishing activities covered in this report occur in areas under national jurisdiction and on the high seas, so many observations are relevant in both contexts.

II. Description of principal vulnerable marine ecosystems and associated biodiversity affected

72. The range of vulnerable ecosystem features have been presented in a number of recent reports.[55] Those generally associated with coastal areas include warm-water (tropical) coral reefs, wetlands, seagrass beds, coastal lagoons, mangroves and estuaries. Those occurring in areas within and beyond national jurisdiction include spawning and nursery grounds, cold-water corals, seamounts, various features associated with polar regions, hydrothermal vents, deep-sea trenches and submarine canyons, and oceanic ridges. The questionnaire posed an open question inviting respondents to identify the main ecosystem features of concern to them. Almost all of the above features were picked out by one or more respondents.[56] This demonstrates the breadth of current concern.

73. With reference to ecosystems of coastal areas, respondents identified the main threats as originating from land-based sources of marine pollution[57] and overfishing, including through the use of destructive fishing techniques such as dynamite or cyanide. The use of dynamite in blast fishing generally targets pelagic fish living above coral reefs, rather than fish living in direct association with reefs. However, blasts typically shatter corals within a radius of 1.15 metres, while killing most marine life up to 77 metres from the blast.[58] Although often officially banned in national legislation, the use of dynamite and other explosives has been reported to be still practised on many reefs in Asian, African, Caribbean and South Pacific waters.[59] Vegetable-based and synthetic stupefacients (for example, sodium cyanide and chlorine) are used by some reef fishers in the collection of aquarium fish. As a result of these and other practices, it is estimated that 10 per cent of tropical corals have been destroyed beyond recovery and a further 60 per cent are at risk of destruction.[60]

74. States reported a wide range of fisheries management measures adopted in response to these problems, including the designation of marine protected areas (MPAs) and other fisheries sanctuaries or closures, various forms of community-based management of resources and prohibition of destructive techniques. It was recognized that action on these issues is largely a matter of national competence, hence largely outside the scope of the present report. It is worth noting, however, that the main challenges reported from developing States include technical capacity

for the design and enforcement of measures, and striking a balance with the needs of small-scale fishers dependent on fishing activities for their livelihoods.

III. Ecosystem impacts from fishery activities

A. Reduction of target biomass in the ecosystem

75. Before particular fishing techniques or ecosystem features are looked at, it should be noted that even a sustainable fisheries harvest has an impact on the target fisheries biomass in the ecosystem in which the catch is taken. One element of effective ecosystem management is therefore setting and enforcing sustainable catch limits.

76. Current levels of overfishing, excess fishing capacity and in particular IUU fishing, reviewed in Part One above, show that much work still needs to be done to get single species fishing under control. Arguably, this sort of control is an essential first step towards the effective use of fisheries conservation and management measures as a tool for protecting vulnerable ecosystems.

77. A particular challenge with respect to deep-sea fisheries is to ascertain sustainable catch levels for deep-water species both within and beyond national jurisdiction. Deep-water species are generally considered to be stocks found at depths greater than 400 metres. They include discrete high-seas fish stocks that generally remain outside existing regulatory frameworks.[61]

78. As will be seen, the distribution of these species is frequently associated with seamounts, ridges and cold-water corals, where the ecosystem impact is on vulnerable habitats as well as fisheries biomass. Fisheries for these stocks have developed in recent years as a response to the depletion of established fishing grounds, and there is still a lack of scientific data on the stocks and their associated ecosystems. The biological characteristics of the stocks — for example, their late maturity — make them particularly vulnerable to overfishing. This has been demonstrated in a number of fisheries. For example, among commercially targeted deep-water species, even in relatively well-managed fisheries off New Zealand, Australia and Namibia, orange roughy has been fished down to 15 to 30 per cent of initial biomass within 5 to 10 years, demonstrating that catch limits for the fishery were set too high. Pelagic armourhead, generally found in the South-West Atlantic and Indo-Pacific, was fished to commercial extinction within 10 years on the north Hawaiian ridge. Rock lobster fisheries on the Vema seamounts in the South-West Atlantic that were depleted in the 1960s took 10 years to recover, and were quickly fished down again.[62]

B. Impact on non-target fisheries and by-catch taken in fisheries operations

79. By-catch is a major problem in ecosystem management, because marine ecosystems are multispecies in nature and fishing gear is neither perfectly species- nor size-selective. In general, the term by-catch covers incidental catch and discards. Examples of by-catch include non-target fish species of less commercial value than the target catch; juvenile fish; or non-fish species such as cetaceans,

marine turtles and seabirds. Shark populations are also threatened because of by-catch. Estimates suggest that fish discarded by-catch may amount to some 20 million tons annually,[63] or at least one fifth of total catch. The mortality rate for all fish by-catch is high, and for deep-sea species is usually 100 per cent. Some non-fish species have slightly higher survival rates. Shrimp fisheries tend to generate the largest quantities of by-catch. Some small pelagic fisheries, such as those targeting dense-schooling herring, capelin and mackerel, generate the least by-catch.

80. Over half of all discards take place in the large commercial fisheries of the North-West Pacific, North-East Atlantic and West Central Pacific, but the portion of discards relative to total catch may be larger in other fisheries. Accurate statistics are difficult to come by, as much by-catch remains unreported. Mortality caused by fishing activities also includes animals that come into contact with fishing gear and then escape, but nevertheless die. Some of the main non-target species affected are covered below.

81. Marine debris from fishing activities is another cause of by-catch and other potential impacts on vulnerable ecosystems. Problems associated with marine debris include "ghost fishing" by lost gillnets, bottom longlines and other passive gear, such as traps and pots. Ghost fishing is less of a problem with mobile gear such as trawls or purse seines. It is estimated that 30 per cent of all marine debris emanates from the fishing industry.[64]

1. Cetaceans

82. There are no comprehensive figures on the numbers of cetaceans (whales, dolphins and porpoises) killed as by-catch. The International Whaling Commission (IWC) assesses by-catch as the current major threat to whales and other cetaceans. Some estimates suggest that 80,000 cetaceans drown annually in gillnet fisheries. Dolphin by-catch is particularly associated with purse-seine fisheries, especially in the Eastern Tropical Pacific, where mortality was estimated at 100,000 annually in the late 1980s before tighter controls were introduced.

2. Marine turtles

83. Marine turtles are most vulnerable to being taken as by-catch in shrimp fisheries, but are also taken in some longline fisheries. Accurate data on the size of the by-catch is difficult to obtain. Estimates suggest that upwards of 200,000 turtles are maimed or killed annually, including 1,000 to 3,000 killed as by-catch by Pacific longline fishing.[65] For some turtle species, such as endangered loggerhead turtles, levels of by-catch have been sufficiently high to prevent stock recovery. In March 2004, FAO hosted an Expert Consultation on interactions between sea turtles and fisheries in an ecosystem context.[66] The meeting reviewed, inter alia, technical measures to reduce turtle by-catch, such as turtle excluder devices, which have had some success in certain fisheries. The experts' findings are to be fed into a larger Technical Consultation on sea turtle conservation and fisheries, in Bangkok in November 2004. All seven species of marine turtles appear on the CITES annex 1 list, prohibiting trade in turtle products.

3. Seabirds

84. Seabird by-catch is a particular problem in longline fisheries, particularly for populations of albatrosses and petrels in the Southern Ocean. Seabirds are also taken

in drift-net fisheries, with estimates of over 1 million seabirds killed annually in the early 1990s. Wide implementation of General Assembly resolution 46/215 and related resolutions banning large-scale pelagic drift-net fishing on the high seas has reduced this catch. There remain problems, including the use of drift nets in some salmon fisheries.

85. The main threat to seabirds is currently from longline fisheries. This threat has increased as a result of gear changes in response to the drift-net ban and restrictions on the use of purse-seine nets due to concerns about dolphin by-catch. Longline fisheries in which seabird by-catch occurs include tuna, broadbill (swordfish) and billfish fisheries in the South Pacific; Patagonian toothfish fisheries in the Southern Ocean; and halibut, black cod, tuna, billfish, Pacific cod, Greenland halibut, cod, haddock, tusk and ling fisheries in northern oceans. The seabirds most commonly taken are albatrosses and petrels in the South Pacific and South Atlantic, Arctic fulmars in the North Atlantic and albatrosses, gulls and fulmars in the North Pacific. Reports from tuna fisheries off Brazil and Uruguay suggest that one bird is caught for every 200 to 300 hooks. There can be 20,000 hooks on a single longline, which can be up to 100 kilometres in length.[67]

4. Sharks

86. Sharks are particularly vulnerable to overfishing, whether through directed fishing or through by-catch, because of their slow growth and late sexual maturity, combined with low levels of fecundation, long reproductive cycles and long recovery times from overfishing. Shark conservation and management suffer also from a continuing lack of reliable data. Sharks taken as by-catch often have commercially valuable fins removed, and the carcasses are discarded.

87. The concerns apply to both neritic sharks, generally found at depths of less than 200 metres around the continental shelf or its edge, and oceanic sharks. Deep-water sharks are especially vulnerable, mostly as by-catch, but also because of harvesting — for example, for shark liver oil. There are 360 species of sharks, distributed in all oceans. Directed ocean fishing for sharks is carried out by means of longlines, hand-lines and bottom trawling on shelf edges. Oceanic sharks are listed in annex I of UNCLOS as a highly migratory species, so many shark fisheries potentially fall within the framework of the Agreement.

C. Impact on the habitat as a result of the use of destructive fishing gear

88. A lot of attention has been directed towards the destructive effects of various types of fishing gear through contact with the seabed and associated ecosystem features. It is widely recognized that all forms of bottom trawl, including dredges, are among the most destructive sort of gear because of the damage caused by dragging them across the seabed. Deep-sea trawls can operate to depths of 1,900 metres. A typical day's drag with a 55-metre trawl net might cover 33 square kilometres of sea floor. Currently the main ecosystem concern relates to the impact of bottom trawls on seamounts and cold-water corals.

1. Seamounts

89. Seamounts, which are underwater mountains, are distributed through all oceans. It is estimated that there are more than 30,000 seamounts in the Pacific, several thousand in the Indian Ocean and some 810 in the Atlantic (concentrated in the north, along the mid-Atlantic ridge). The concentration of commercially valuable fish species around seamounts is well documented. Research indicates that seamounts are sources of primary production of zooplankton and fish, as well as "stepping stones" and refuges for migratory and other fish species that feed on plankton either produced at seamounts or trapped by them.

90. In addition to the vulnerability of those stocks to overfishing, fishing on seamounts affects benthic fauna such as sponges, hydroids and ascidians, as well as cold-water corals. Corals are the dominant seamount fauna, particularly on the most exposed parts of the mounts, where currents help ensure that corals are supplied with food.

2. Cold-water coral reefs

91. Cold-water coral reefs are distributed in almost all oceans and seas. Their vulnerability is the subject of a special study supported by the United Nations Environment Programme (UNEP) Coral Reef Unit, published in July 2004.[68] UNEP reported at least 23 fish species observed in cold-water corals, including several highly commercial ones such as pacific cod, monkfish, ling, armourhead, Greenland halibut and orange roughy. Mapping of corals shows a wide distribution. The most studied cold-water coral, *lophelia pertusa*, occurs in many major fishing areas, including throughout the North Atlantic (especially in the North-East), off West Africa and Brazil, in the North-East Pacific and in the Indian Ocean. Knowledge of other reef-forming corals is relatively limited, but scientists assess that it is likely that new reef systems will be discovered.

92. The attractiveness of reefs for fish is not fully understood, but is likely to relate to their value as feeding, hiding and nursery places. Together, these are thought to play an important role in the life cycle of fish species. The damage to reefs caused by trawls includes the killing of coral polyps, inhibiting growth, and breaking up reef structures. Sediment displaced by trawls further inhibits growth. Both on seamounts and elsewhere, a range of benthic fauna are associated with coral reefs, and are hence at risk of damage from trawling.

3. Polar regions

93. The principal ecosystem features of the Arctic and Antarctic are reviewed in the addendum to the Secretary-General's main report on oceans and the law of the sea.[69] In Antarctica, the short food chain in the marine ecosystem from primary production to top predators means that krill is the major food source for many marine animals, including birds, seals and fish. The by-catch of seabirds in directed fisheries for Patagonian toothfish, a deep-water species, is another particular problem in Antarctic fisheries. As a result of fishing activities, Arctic ecosystems, which vary greatly according to seasonal iceflows, are vulnerable to such impacts as those relating to benthic biodiversity and by-catch, including marine mammals and seabirds. The Working Group of the Arctic Council on the Conservation of Arctic Flora and Fauna has recently reviewed the main ecosystem features.[70]

4. Other vulnerable ecosystem features

94. Seamounts and cold water coral reefs have been identified in the present report as the underwater ecosystem features currently most at risk from fishing activities. Other vulnerable ecosystem features located beyond national jurisdiction, which are identified in the addendum to the Secretary-General's main report on oceans and the law of the sea,[71] are considered to be less at risk. These include deep-sea trenches, where species such as varieties of sea cucumber and some crustaceans, marine annelid worms and a range of benthic fauna are of scientific interest but appear unlikely to be of commercial fishing interest. Similarly, endemic fauna associated with cold seeps and pockmarks are of mainly scientific interest.[72]

95. Significant fishing does take place in and around submarine canyons, many of which are within EEZs. Submarine canyons have been shown to have greater biomass and diversity of commercially important species such as lobster, crab, shrimp, flounder, hake, ocean pout, cusk and tilefish because of their wide variety of substrate types, which provide shelter. Such shelter is frequently used by juveniles, making submarine canyons important nursery grounds. Cold-water coral has been found in some canyons.[73]

D. Indirect impacts on other species through food-chain effects

96. There is still significant uncertainty about how fishing has an impact on ecosystems through food-chain effects, but it is clear there are effects.[74] For example, the effects of the feeding of large populations of marine mammals such as seals are well known. Other examples of food-chain effects include the fact that kelp forests are sustained by the feeding of sea otters on sea urchins. Also, there is evidence that reduced biomass of mackerel and herring in the North Atlantic has in turn reduced predatory pressure on gadoid larvae, improving the recruitment of gadoids such as cod and haddock.

97. Scientific research into trophic (nutrition-related) cascades shows mixed evidence on how food webs behave and that there are no single drivers of sustainable ecosystems. For example, in a simple four-level food web consisting of top-level predators, forage fish, zooplankton and phytoplankton, studies show that dominant ecosystem features can include both top-down control, through predation, and bottom-up control, through the availability of food supplies. There are no definitive prescriptions as to the relative ecosystem impact of fishing at different levels in the food web. The uncertainties and vulnerabilities can be even greater in deep-water fishing, where the vertical migration of species taken by predators in deeper waters contributes to overall energy transfer through food supplies to vulnerable deep-water ecosystems.[75]

98. All of these food-web effects also need to be considered against the effects of fish feeding in healthy ecosystems, where the rate of fish mortality from feeding is much higher than that from extraction through fishing activities. Also, environmental factors, of which the El Niño effect is a well known example, produce significant variations in ecosystem behaviour. In many cases a key issue with respect to food-chain effects of fishing, like other fishery ecosystem impacts, is an understanding of recovery times as well as an assessment of impact in itself.

IV. Fisheries conservation and management measures in place to address impacts on the marine biodiversity of vulnerable marine ecosystems

A. Binding instruments

99. Article 193 of UNCLOS establishes the general duty of all States to protect and preserve the marine environment. Such measures must include those necessary to protect and preserve rare or fragile ecosystems, as well as the habitat of depleted, threatened or endangered species and other forms of marine life (article 194 (5)). For coastal States setting the total allowable catch of living resources in EEZs, articles 61 (3) and 61 (4) provide that factors to be taken into account should include the interdependence of stocks and the effect of fishing on species associated with or dependent upon harvest species.

100. Article 63 of UNCLOS applies to stocks that straddle adjacent EEZs and/or the high seas, and provides for cooperation between coastal States and States fishing on the high seas to achieve the conservation and development of those stocks. Article 64 provides for similar cooperation in respect of highly migratory species (with an emphasis on optimum utilization of stocks). In both cases, cooperation should be direct, or through subregional or regional organizations. Articles 66 and 67 apply special provisions to fisheries for anadromous and catadromous stocks, generally limited to EEZs, but nevertheless relevant to ecosystems in these areas.

101. Articles 118 and 119 establish the general obligation of all States to cooperate in the conservation and management of living resources in the high seas, applying criteria similar to those in articles 61 (3) and 61 (4), on interdependent and associated stocks. Article 117 also requires States to cooperate with other States in taking such measures as may be necessary for the conservation of the living resources of the high seas.

102. Article 145 contains provisions relating to the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment arising from activities in the Area. Article 234 provides for the rights of coastal States to adopt and enforce laws and regulations for the prevention, reduction and control of pollution of the marine environment in ice-covered areas, in particular where pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance.

103. The 1992 Convention on Biological Diversity (CBD) is compatible with and complements UNCLOS. Article 4 (b) provides that the scope of CBD includes all components of biodiversity in areas under national jurisdiction, and the effects beyond national jurisdiction of processes and activities carried out by States within their national jurisdiction. Article 5 establishes a general obligation for States to cooperate for the conservation and sustainable use of biodiversity in areas beyond national jurisdiction. Article 8 sets out a number of measures for in situ conservation, including the establishment of protected areas where necessary.

104. The 1995 Jakarta Mandate on Marine and Coastal Biodiversity[76] advanced the implementation of CBD, for example by elaborating on an ecosystem approach and focusing on the establishment and strengthening of national and regional systems of marine and coastal protected areas. Most recently, pursuant to decision VII/5 of the

seventh CBD Conference of the Parties, it was agreed to work towards the marine ecosystem goals set by the World Summit on Sustainable Development. Proposed work includes developing mechanisms for the establishment of MPAs beyond national jurisdiction and for States to identify processes and activities under their jurisdiction that may have significant adverse effects on deep-sea ecosystems and species in areas beyond national jurisdiction.

105. The 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks provides a legal basis for the adoption of a range of measures related to vulnerable ecosystems. These include measures to maintain or restore populations of species within the same ecosystem as target fish stocks; to minimize catch of non-target species; to protect biodiversity; for the application of the precautionary approach; and for the collection of scientific data.[77] The Agreement also requires coastal States and States fishing on the high seas to cooperate in order to ensure the compatibility of measures within and beyond areas of national jurisdiction.[78] It furthermore contains detailed provisions on the duties of flag States.

106. The Agreement provides that States should pursue the adoption of measures by acting through RFMOs, and to establish these through consultations "in good faith and without delay" where none exist.[79] The principal measures adopted by those RFMOs competent to adopt regulatory measures are reviewed below.

107. The 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas does not contain any specific provisions related to ecosystems. It is, however, relevant as an additional source relating to flag-State responsibility in respect of all agreed high-seas conservation and management measures. Its main provisions were introduced in Part One of the present report.

108. The 1979 Convention on the Conservation of Migratory Species of Wild Animals (CMS) provides a framework for the adoption of regional and species-specific conservation agreements. A number of regional instruments are in force relating to by-catch in fisheries.

109. Annex V to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) prohibits the intentional disposal of all plastics, including synthetic ropes and fishing nets, in all marine areas. The disposal of garbage is prohibited within special areas designated in accordance with the provisions of the annex.

B. Non-binding instruments

110. Part One of the present report reviewed the implementation of the Code of Conduct and its related IPOAs as the principal non-binding instruments that have been adopted to ensure sustainable fisheries. All of these are directly or indirectly relevant to the management of fishing impacts on vulnerable marine ecosystems. The introduction to the Code of Conduct specifically asserts the need for due respect for the ecosystem and biodiversity. This is expanded upon throughout the Code of Conduct with a comprehensive set of recommended measures, including research into ecosystem factors, application of the precautionary approach and fishing gear

selectivity.[80] IPOA-Seabirds and IPOA-Sharks are directly relevant to mitigating ecosystem impacts from by-catch. IPOA-Capacity and IPOA-IUU are also relevant as part of the wider regulatory framework that underpins ecosystem-related measures.

111. The 2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem further elaborated the general principles for the incorporation of ecosystem considerations into fisheries management. The Declaration recognizes the potential enhancement of fisheries management performance through the application of ecosystem considerations and calls for a range of ecosystem-related management tools.

112. The recommendations of the 1991 FAO Expert Consultation on the Marking of Fishing Gear are designed to help national administrations design measures to minimize the discarding of gear, through the marking of ownership and obligations to report lost gear.[81]

113. The Johannesburg Plan of Implementation has three key provisions on ecosystem impacts of fishing activities: (a) implementation of the ecosystem approach to fisheries by 2010, taking account of the Reykjavik Declaration; (b) elimination of destructive fishing practices and the establishment of marine protected areas consistent with international law; and (c) greater collaboration between UNEP regional seas programmes and RFMOs.[82]

114. The International Coral Reef Initiative (ICRI) provides an additional non-binding mechanism by which Governments and other stakeholders, including United Nations bodies, NGOs and the private sector, collaborate on a range of activities related to sustainable use and conservation of coral reefs.

C. The ecosystem approach to fisheries

115. The instruments cited above set out the broad framework for the management of fishing impacts on ecosystems, but do not give detailed guidance on how to operationalize the principles involved. The FAO Technical Guidelines on the ecosystem approach to fisheries (2003 supplement) provides an outline for an operational approach.

116. The Technical Guidelines draw attention to the need to maintain ecological relationships between harvested, dependent and associated stocks. This should be done by implementing compatible measures across entire ecosystems. Ecosystems may range from coastal areas to large marine ecosystems (LMEs) crossing many jurisdictions. The Guidelines argue for wide application of the precautionary approach, given scientific uncertainty. They stress the need to balance both human and ecosystem well-being and further argue for a transparent, consultative approach to the design of measures, taking into account the views of all stakeholders, including artisanal and small-scale fishers dependent upon fishing opportunities both within and outside coastal waters for their livelihoods and food security.

117. Stakeholder participation in an ecosystem approach to fisheries also helps ensure that economic factors that can lead to harmful fishing practices are taken into account. For instance, economic pressures to fill quotas for target species may contribute to discard of by-catch where fishers cannot afford to land lower-value species. Some conservation and management measures, such as size restrictions on

landings, may also inadvertently increase by-catch. The Guidelines draw attention to the need for economic incentives for effective ecosystem management. These may include fishing access rights, which can be tradable as market-based incentives. There are other market incentives, such as ecolabelling, and non-market incentives, such as fiscal incentives for compliance with conservation and management measures.

118. All of these factors underline the need for an ecosystem approach to fisheries to form part of a comprehensive approach to fisheries management, including effective measures against IUU fishing and reducing overcapacity in fishing fleets, covered elsewhere in the present report. In the case of many developing States, it also demonstrates a link between ecosystem management, IUU fishing and poverty.

D. Fishing gear modifications

119. As noted above, the importance of ecosystems has long been understood by fisheries managers. Much work has already been done on the modification of fishing gear and techniques, often with outcomes that contribute to the efficient capture of target species and the mitigation of ecosystem impacts at the same time. The following is a brief review of some of the main types of gear involved, and ways they have been or could be modified to mitigate impacts.[83]

120. *Midwater trawls* can range from small gear towed by artisanal fishers to trawls 100 metres high. Changing mesh size is a reasonably effective way to reduce by-catch of juveniles and undersized fish in single-species fisheries, but less effective in mixed fisheries. Sorting grids to enable the release of non-target catch are the other main adaptation of trawls. One reasonably successful adaptation of trawls has been the insertion of TEDs to reduce turtle by-catch in shrimp fisheries. TEDs work by guiding turtles out of the net while target shrimp pass through.

121. *Bottom trawls* have been shown to dig 10 to 25 centimetres into the sea floor, depending on the hardness of the bottom surface. Notwithstanding the ecosystem impact, fishers seek techniques to reduce bottom contact, as this slows fishing and may damage gear. Approaches include trawl flotation techniques and "smart" technology that constantly adjusts the distance from the bottom according to fishing opportunities. Research into these techniques is at an early stage. The impact of bottom trawls was discussed at the fifth ICP meeting, where some participants called for a moratorium on their use in deep-water fisheries. There was not, however, any consensus on this view.

122. *Purse seines* are non-selective, and are particularly associated with dolphin by-catch because of the way the nets encircle schools of target species. Modifications to nets and advances in release techniques, including education for fishers, have been the principal approach to reducing by-catch associated with this type of net. Sorting grids have also been used, but with more limited results.

123. *Gillnets* are suspended in the water column to trap fish as they move. Mesh size is generally effective for size but not species selectivity. Diving seabirds and marine mammals can also get tangled in gillnets. The bottom impact of gillnets is reduced by raising the groundline at the bottom of the net, but this can cause the loss of demersal catch. Design techniques for the use of bottom-set gillnets in deeper water are improving, making the nets more popular. The main ecosystem

impact of this type of gear on deep-sea habitats occurs if gillnets are dragged along the bottom while being raised. Technical modifications are difficult. This means that limits on the number of gillnets set may be the most effective approach to mitigate impact where this is a problem.

124. *Dredges* are used to harvest both bottom-dwelling targets, such as scallops, and targets within the seabed, such as some clams. They may penetrate 30 centimetres or more into the ocean floor. Hydraulic dredges are used in deeper waters. Because of the target species, modifications are difficult, so, again, controls on the use of gear may be the only way to mitigate impact where this is a problem.

125. *Longlines* in pelagic fisheries present a particular risk of seabird by-catch, and to a lesser extent sea turtles and other species. The use of bird-scaring devices to make baited hooks less accessible is a straightforward technique that has proved effective. The laying of lines at night also makes a big difference, with no technical modifications. Not all longlines present a risk of by-catch: for example, small-scale longline fishing in deeper waters has been noted to be relatively "clean", with little risk of by-catch. The impact of demersal longlines on seabed habitats has not been well studied. The main impacts occur when lines are being pulled and snag on seabed features.

126. *Traps and pots* may cause damage if dragged on the seabed during recovery, but this is a relatively limited impact unless very large numbers are in use.

127. As already noted, lost or abandoned gear presents an additional potential source of impact on ecosystems. Possible solutions are the recovery of lost gear and the use of biodegradable materials for some types of gear, which is the subject of current research. Although research shows most impacts are negative, there are examples of more productive impacts. These include some cases of benthic organisms establishing themselves in the shelter of indentations left by fishing gear and some cases where seabird populations benefit from feeding opportunities resulting from discards and offal discharge around fishing vessels.

E. Marine protected areas

128. Along with fishing-gear modifications, MPAs are an important option and component in an ecosystem approach to fisheries. FAO outlined the main features of MPAs in the Technical Guidelines on the ecosystem approach to fisheries. Most State respondents to the questionnaire drew attention to the use of MPAs or of other forms of marine reserves as part of an ecosystem approach in areas under their national jurisdiction. A number of NGO respondents to the questionnaire also noted the potential for MPAs on the high seas. The interest of CBD parties in high-seas MPAs has already been noted.

129. There are many different types of MPAs in operation in areas under national jurisdiction. Some may be entirely closed to fishing activity, while others may be closed only to fishing with certain types of gear, or to fishing at certain depths.[84] For any MPA, careful design of objectives and means for enforcement are possible. The number of stakeholders potentially involved also underlines the need for a participative design process. There are particular challenges where, for example, ecosystem features spread across one or more jurisdictional boundaries, particularly in the case of LMEs. Also, it is important that restrictions in an MPA do not lead to

increased pressure of fishing elsewhere. Evidence suggests that well-designed MPAs can produce payoffs for fisheries — for example, by creating healthy feeding (including larval feeding) and spawning grounds, offsetting ecosystem impacts of fishing outside the MPA and producing socio-economic benefits for local communities.

130. Some participants at the fifth ICP argued that article 192 of UNCLOS, which establishes the general obligation of States to protect and preserve the marine environment, could be used as the basis to establish MPAs on the high seas. There was not, however, any consensus on this view.

V. Existing measures

131. The framework of instruments outlined above provides a basis for the adoption within RFMOs of measures to mitigate the impact of fishing on ecosystems and biodiversity in areas beyond national jurisdiction. Such measures may be regarded as the implementation of the general obligation to cooperate, as established by article 117 of UNCLOS, and/or the specific measures provided for in the Agreement. In recent years several RFMOs have adopted measures reflecting an ecosystem approach. A small number of newly created RFMOs have an explicit mandate to implement such measures in their founding instruments.

132. The objectives of most RFMOs, as set out in their founding instruments, relate to the conservation and sustainable use of fisheries resources, not to the protection of ecosystems and biodiversity. An important exception is the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), whose objective is the conservation of Antarctic marine living resources, as well as their rational use.[85]

133. Two new RFMOs, the South East Atlantic Fisheries Organization (SEAFO) and the Western and Central Pacific Fisheries Commission (WCPFC), contain provisions relating to the ecosystem approach, which are modelled on the Agreement. The treaties establishing these organizations entered into force, in 2003 and 2004, respectively, but no actual measures have yet been adopted. Notably, the SEAFO Convention also applies to discrete high-seas fish stocks in the Convention area, possibly setting a precedent for the application of provisions of the Agreement to these stocks.

134. In 1997, the members of GFCM adopted a revised Convention that provides for the application of the precautionary approach. It does not, however, make reference to any explicit ecosystem-related measures. The Convention entered into force in 2004.

135. In 2003, members of IATTC adopted a revised version of the IATTC Convention with similar provisions. The revised Convention has not yet entered into force. Members of IATTC have also adopted an ecosystem approach in the related Agreement on the International Dolphin Conservation Programme (AIDCP), designed to reduce and ultimately eliminate dolphin by-catch in purse-seine fisheries. AIDCP entered into force in 1999 and was amended in 2003.

136. The 2000 Framework Agreement for the Conservation of Living Marine Resources in the High Seas of the South-East Pacific also provides for ecosystem-related measures. The Agreement is not in force, and, in advance of involvement by any high-seas States, its status is not clear.[86]

137. Negotiations are also under way to establish a South-West Indian Ocean Fisheries Commission (SWIOFC), which is expected to include measures based on the Agreement and measures for discrete high-seas fish stocks in the South-West Indian Ocean.

138. The ecosystem approach to fisheries and implementation of the precautionary approach have also featured in discussions of the biennial meeting of RFMOs hosted by FAO.

A. Summary of principal measures in place adopted by regional fisheries management organizations

139. The absence of a specific treaty-based mandate in most cases has not stopped several RFMOs from adopting some ecosystem-related measures in recent years. The following is a summary of the principal measures in place.

140. *Commission for the Conservation of Antarctic Marine Living Resources*. In accordance with its specific conservation mandate in respect of all living marine resources, CCAMLR has adopted an ecosystem approach to fisheries. The particular importance of krill in the Antarctic ecosystem was one of the main initial reasons behind the adoption of the CCAMLR Convention in 1980. The establishment of precautionary catch limits for krill was the first application of such limits in an RFMO. This includes a number of gear restrictions to avoid by-catch of seabirds. For example, longlines must be set at night, streamer lines must be used to scare birds and offal discharge (which attracts birds) is prohibited during line-setting.[87] The toothfish fishing season is also timed to open when fewer birds will be in the CCAMLR area. With respect to sea-floor ecosystems, CCAMLR has banned the use of bottom trawls for ice-mackerel fisheries on the South Georgia continental shelf and some other demersal fisheries.[88] CCAMLR estimates that night-time setting alone reduced albatross deaths by 80 per cent over three years. Seabird mortality is, however, still a problem, exacerbated by IUU fishing in the CCAMLR area and longlining in waters adjacent to it.

141. *International Commission for the Conservation of Atlantic Tunas* The mandate of ICCAT covers tuna and tuna-like species, so its competence is limited to fishing activities and gear that target these species. Bottom trawls, for example, are not used in tuna fisheries. ICCAT measures include resolutions on incidental mortality of seabirds and sea turtles and on requiring reporting of by-catch as part of the ICCAT scientific assessment of ecosystem-related issues.[89] ICCAT collects scientific data on shark by-catch and has encouraged all its members to implement IPOA-Sharks, including by releasing live by-catch and minimizing waste and discards from shark by-catch, for example, by retaining sharks from which fins are removed.[90]

142. *Inter-American Tropical Tuna Commission*. Like ICCAT, the mandate of IATTC is limited to tuna. Its consolidated resolution on by-catch[91] includes compulsory landing of juvenile tunas and measures for the live release of by-catch of non-target species, including sharks and marine turtles. IATTC has also adopted a three-year programme of research on marine turtles, including data collection and work on types of gear to mitigate impacts. The programme includes a voluntary trust fund to support capacity-building in developing States members.[92] As noted

above, IATTC members have also adopted the AIDCP programme to eliminate dolphin by-catch.

143. *Indian Ocean Tuna Commission*. The mandate of IOTC is also limited to tuna. In 1999, it established a five-year research programme on ecosystem issues. The IOTC Scientific Committee has also made a number of recommendations, covering, for example, the reduction of unsustainable by-catch and support for the implementation of IPOA-Sharks. No specific regulatory measures have been adopted in this area.

144. *North-East Atlantic Fisheries Commission*. The mandate of NEAFC includes straddling fish stocks and could apply to discrete high-seas fish stocks, although measures adopted to date relate predominantly to straddling fish stocks. In 2003, NEAFC adopted a freeze on catch levels in deep-water fisheries and banned gear other than longlines on the Rockall Bank.[93] Consideration of other ecosystem issues remains within NEAFC scientific discussion. Shark by-catch is a matter for national competence among NEAFC members.

145. *Northwest Atlantic Fisheries Organization (NAFO)*. Like that of NEAFC, the mandate of NAFO includes straddling fish stocks and could apply to discrete high-seas fish stocks, although measures adopted to date relate predominantly to straddling fish stocks. The scientific advice of NAFO takes account of precautionary reference points, but no specific ecosystem-related measures have been adopted. Some oceanic sharks are explicitly included within the NAFO mandate, but are not currently subject to conservation and management measures.[94]

146. *Commission for the Conservation of Southern Bluefin Tuna*. CCSBT has established a working group on ecologically related species, whose work includes recommendations with respect to shark and seabird by-catch. No formal regulatory measures have been adopted in this area.

147. *General Fisheries Commission for the Mediterranean*. GFCM is working with FAO to support a UNEP biodiversity research programme. With regard to sharks, its Scientific Committee collects data on catches of large migratory sharks. No formal regulatory measures related to ecosystems have been adopted.

148. The foregoing review has concentrated on the main regulatory RFMOs currently adopting conservation and management measures for high-seas fisheries. One other regulatory instrument not covered here is the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, as stocks covered by it are not at levels to permit commercial fishing. Among RFMO respondents to the questionnaire dealing with fisheries within EEZs, the North Atlantic Salmon Conservation Organization (NASCO) noted that salmon gear in use is not considered to create harmful ecosystem impacts. NASCO does, however, address ecosystem issues through its plan of action on habitat predation and restoration.

149. In addition to the design of measures, their effective enforcement presents a further challenge to RFMOs. The issues here are broadly the same as those for IUU fishing in general. Similar considerations apply to dispute settlement. The International Tribunal for the Law of the Sea, although primarily dealing with prompt-release cases, has touched upon questions of conservation, as well as illegal and unlawful fishing (*Saiga* case, *Camouco* case, *Monte Confurco* case, *Swordfish stock* case, *Grand Prince* case, *Volga* case).[95]

B. Principal gaps in the coverage of existing measures adopted by regional fisheries management organizations

150. A particular problem with respect to the application of measures through RFMOs is gaps in the coverage of all areas beyond national jurisdiction. This includes sea areas where there are no RFMOs, and where RFMOs are competent only to manage specific stocks. As noted above, the Agreement provides for the establishment of RFMOs in areas where none exist.

151. The Secretary-General's 2003 report on sustainable fisheries[17] identified the principal gaps in coverage by existing RFMOs with respect to straddling fish stocks and highly migratory fish stocks. If discrete high-seas fish stocks such as those associated with seamounts are added, the gaps appear to be as follows: the South-East Pacific for all fish stocks; and the South-West Atlantic, South-East Pacific, West Central Pacific, Indian Ocean and Caribbean for straddling fish stocks and discrete high-seas fish stocks. The absence to date of any actual management measures adopted in the newly established SEAFO and WCPFC also leave gaps for straddling and discrete fish stocks in the South-East Atlantic and for highly migratory fish stocks in the West Central Pacific. The ongoing negotiations to establish SWIOFC should close the jurisdictional gap in that part of the Indian Ocean.

C. National fisheries measures adopted to protect seamounts and cold-water corals

152. In the absence of any currently agreed measures to protect seamounts and cold-water corals in areas beyond national jurisdiction, it is helpful to look at some examples of the national measures adopted by a number of countries. The following brief illustration is based on information submitted to the Division for Ocean Affairs and the Law of the Sea, and may not be comprehensive.

153. In the North-East Atlantic, measures have been adopted to protect cold-water corals. In 1999, Norway banned the dragging of all fishing gear in contact with the sea floor in the Sula Reef, in its EEZ.[96] In 2003, at the request of the United Kingdom of Great Britain and Northern Ireland, EU adopted an emergency measure to prohibit the bottom-trawling use of similar trawl gear on the Darwin Mounds, a 1,500-square-kilometre area of cold-water coral reefs at a depth of about 1,000 metres, north-west of Scotland. The measure may be made permanent in 2004.[97]

154. In the North-West Atlantic and North-East Pacific, Canada and the United States of America have introduced some restrictions on bottom trawls in a number of designated areas and have reported plans to expand these restrictions.[98] In May 2004 Canada used powers under its Oceans Act to designate the Gully Marine Protected Area, in the Gully marine canyon east of Novia Scotia.[99]

155. In 2001, New Zealand closed fisheries on 19 seamounts in its EEZ, and enforced a voluntary closure on one in adjacent high-seas waters, because of the substantial coral by-catch associated with the orange roughy fishery. This measure is noted as largely precautionary, given gaps in understanding of the long-term impacts of fishing activities on seamount benthic fauna.

VI. Cooperation within the United Nations system

156. The work of FAO on ecosystems is centred on the implementation of the instruments covered in this section. Among other United Nations bodies, UNEP has a number of programmes relevant to ecosystem management. Its work on coral reefs, which supports the ICRI initiative, has already been cited.

157. Through the UNEP Regional Seas Programme, the 2004-2007 regional seas strategy aims to promote the implementation of all relevant international instruments, including through collaboration with RFMOs. The Regional Seas Programme also promotes education for fishers on how to avoid turtle by-catch, and works with IMO on implementation of MARPOL 73/78. UNEP is working with FAO on a GEF-funded project entitled Reduction of Environmental Impact from Tropical Shrimp Trawling through Introduction of By-Catch Technologies and Changes in Management. UNEP is also active in the SWIOFC initiative, taking account of the jurisdictional complementarity with the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region. The UNEP Division of Technology, Industry and the Environment has since 1997 organized workshops to address fisheries subsidies issues, including their impact on populations of non-target species, habitats and IUU fishing more generally. The most recent workshop took place in April 2004.[100]

158. Finally, the UNEP World Conservation Monitoring Centre provides information resources on a number of subjects, including marine protected areas, through its collaboration with IUCN and the World Commission on Protected Areas.

159. The GEF focal areas on biodiversity and international waters both take account of ecosystem factors in fisheries management. GEF acts as the financial mechanism of CBD. Its projects in these focal areas are managed by three GEF implementing agencies: UNEP, the United Nations Development Programme (UNDP) and the World Bank. Currently under consideration are a number of proposed GEF projects related to sub-Saharan African, East Asian, Caribbean and Humboldt Current LMEs and to oceanic fisheries management for Pacific small island developing States.

160. In West and Central Africa, UNDP, FAO and UNEP have prepared GEF projects on ecosystem-based management of fisheries in the LMEs of the Benguela Current, the Guinea Current and the Canary Current. The recovery and sustainability of depleted fisheries and living marine resources is one of the main objectives of these projects.[101]

VII. Conclusions

161. The present report attempts to illustrate how a very wide range of fishery issues and activities have an impact on vulnerable ecosystems and marine biodiversity. Scientific understanding of some of the issues covered in the report is still developing.

162. As noted in the report, all fishing has some impact on marine ecosystems. The principal objective of an ecosystem-based approach to fisheries management is therefore to decide where and how to mitigate these impacts while maintaining fishing as a viable economic activity.

163. It is difficult to separate an ecosystem approach from the other issues related to sustainable fisheries covered in Part One of the present report, such as effective action against IUU fishing and management of current overcapacity in the fishing industry. Without action in these areas, it will be difficult to mitigate effectively ecosystem impacts of fishing activities.

164. The framework of binding instruments provides a basic obligation for all States to cooperate with respect to ecosystem management. These are articulated particularly clearly in the Agreement. Full implementation of these instruments is therefore a priority. Gaps in scientific knowledge make obligations for data collection and application of the precautionary approach in accordance with the Agreement particularly useful tools. The establishment of UN-Oceans and ongoing cooperation among various United Nations bodies and RFMOs also offer potential to close gaps in scientific knowledge.

165. Gaps in scientific knowledge have led RFMOs to prioritize the collection of data in current approaches to ecosystem management, although several bodies have introduced specific conservation and management measures, such as gear restrictions, to avoid excessive by-catch and, in two geographically limited cases, restrictions on the use of bottom trawls.

166. The potential for action by RFMOs is limited in some areas by the mandate in their founding instruments and more particularly in those high-seas areas where no competent regulatory RFMO currently exists. The creation of new RFMOs in the South-East Atlantic and West Central Pacific, and work in progress in the South-West Indian Ocean, will go some way towards addressing this situation, but gaps are likely to remain in some fisheries.

167. Three particular issues have come under recent scrutiny. These are the benthic impact of bottom trawls on seamounts and cold-water corals; overfishing for discrete high-seas fish stocks (in particular those associated with seamounts) that fall outside current regulatory frameworks; and proposals, particularly in the framework of CBD, to establish marine protected areas on the high seas. There was no consensus on any of these matters in discussions during the fifth ICP.

Notes

[1] The questionnaire circulated by FAO on fisheries matters is referred to as the FAO questionnaire.

[2] For the purposes of this report, the expression RFMOs also covers FAO regional fisheries bodies established in accordance with article XIV of the FAO Constitution.

[3] References to States' responses in the body of the report include the EC response unless otherwise indicated. However, the responses are presented separately in annex I because of some slight variations in the questions posed to EC.

[4] A/59/62 and Add.1.

[5] A/59/63.

[6] A/59/122.

[7] ICSP3/UNFSA/REP/INF.1.

[8] A/57/459.

[9] A/58/215.

[10] See *The State of World Fisheries and Aquaculture*, FAO Fisheries Department, 2002, pp. 2-3 and 22-23.

[11] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[12] See http://www.fao.org.

[13] New Zealand, United States of America and EC.

[14] Australia, Mexico, the United States of America and EC.

[15] United States of America.

[16] New Zealand, United States of America and EC.

[17] A/58/215.

[18] See General Assembly resolution 58/14, paras. 5, 14 and 15, and FAO Conference resolution 6/2003.

[19] See, for example, A/58/215, para. 3. FAO has also recognized this complementarity. Resolution 6/2003 of the FAO Conference called for full implementation of all the instruments listed.

[20] Articles II, III and VI.

[21] The 53 parties to the Agreement include Member States of EU on whose behalf EC has accepted the Compliance Agreement, in accordance with EU competence rules. For this reason, these States are not competent to accept the Compliance Agreement in their own right. Of the new EU member States that joined in 2004, only Cyprus and Malta are parties to the Agreement.

[22] See http://www.mfmr.gov.na/seafo.

[23] See http://www.ocean-affairs.com.

[24] Membership information from official RFMO web sites.

[25] *Decision-making in regional fisheries bodies or arrangements: the evolving role of RFBs and international agreement on decision-making processes*, FAO Fisheries Circular No. 995 (FIPL/C995), 2004.

[26] See FAO Fisheries Report No. 703 (2003).

[27] See resolution 58/14, paras. 19-29.

[28] See A/59/122, paras. 6 (f), 54 and 82.

[29] See FAO document TC IUU-CAP/2004/2, TC IUU-CAP/2004/3 and Fisheries Circular No. 996 (FIPL/C996), 2004.

[30] See IMO resolution A.925(22).

[31] See A/56/58, paras. 246-251, and A/57/57, para. 128.

[32] See http://www.high-seas.org.

[33] See http://www.imcsnet.org.

[34] Letter of 27 July 2004 to the Division from the American Albacore Fishing Association.

[35] See the report of the meeting at http://www.afsc.noaa.gov.

[36] Paragraph 50 of the resolution requests a study that includes an update of FAO Technical Paper 389, on shark utilization, marketing and trade.

[37] In addition to points noted in this section, the FAO submission drew attention to FAO Fishery Circular FIIU/C990, entitled "World markets and industry of selected commercially exploited

aquatic species with an international conservation profile", pp. 103-159.

[38] A report of the workshop is annexed to the Deep Sea 2003 interim report, at http://www.fish.govt.nz/current/deepsea/.

[39] Australia, Mexico, United States of America and EC.

[40] United States of America.

[41] *Biological and Trade Status of Sharks, Report of the Working Group*, CITES document AC20 Doc.19; *Report on the Implementation of the UN FAO International Plan of Action for Sharks (IPOA-Sharks)*, CITES document AC20 Inf.5, available at http://www.cites.org.

[42] See A/59/62/Add.1, paras. 261-262.

[43] See http://www.accobams.mc.

[44] See http://www.ascobans.org.

[45] See http://www.cms.int/species/africa_turtle/AFRICAturtle_bkgd.htm.

[46] See http://www.ioseaturtles.org/org_intro.html.

[47] See http://www.acap.aq.

[48] See FAO document TC IUU-CAP/2004/4.

[49] Ibid., para. 28. FAO reports that Australia, Malaysia, the Republic of Korea, the United States of America, most European States and China have buyback programmes. A recent Chinese scheme targets 30,000 vessels, representing 7 per cent of total fleet capacity.

[50] Paras. 9-10 of the report of the FAO Technical Consultation reported particular concern about the construction of vessels in Taiwan Province of China (not yet published, advance copy provided by FAO to the Division for Ocean Affairs and the Law of the Sea).

[51] Commission Regulation (EC) No. 1438/2003.

[52] See A/59/122, paras. 19-25.

[53] A/59/62/Add.1.

[54] Michel J. Kaiser, Jeremy S. Collie, Stephen J. Hall, Simon Jennings and Ian R. Poiner, "Impacts of Fishing Gear on Marine Benthic Habitats", in *Responsible Fisheries in the Marine Ecosystem* (Sinclair and Valdimarsson, eds., 2003, FAO publication), p. 198.

[55] For example, GESAMP report and study No. 70, "A sea of troubles" (UNEP 2001); A/58/65, paras. 176-184; and A/59/62/Add.1, Part Two.

[56] Wetlands, seagrasses and mangroves were not mentioned in the responses.

[57] See A/59/62/Add.1, paras. 275-276.

[58] See Kaiser et al., op. cit., pp. 197-218.

[59] Ibid.

[60] GESAMP, "A sea of troubles", op. cit.

[61] Comprehensive data on the distribution of deep-sea species is lacking, and there is still scientific uncertainty in some cases as to whether the distribution of some apparently discrete stocks in fact falls within the scope of the United Nations Fish Stocks Agreement. The Traffic Oceania and WWF report Managing Risk and Uncertainty in Deep-Sea Fisheries (Australia, 2003), p. 2, suggests the following as the main deep-sea stocks: Atlantic/adjacent seas (North-East Atlantic): ling, blue ling, tusk, orange roughy, greater forkbeard, roundnose grenadier, black scabbardfish, deep-sea sharks and *Argentina silus*; (South-East Atlantic): orange roughy and red crab; Indian Ocean/Indo-Pacific (South-West Indian Ocean): orange roughy and alfonsino; (North Pacific): sablefish and armourhead; Transocean (Southern ocean): Patagonian toothfish.

[62] See *Status of natural resources on the high seas*, Southampton Oceanography Centre (2001 WWF), p. 25; and the interim report of the Deep Sea 2003 Conference, jointly hosted by FAO and the Government of New Zealand, available at http://www.fish.govt.nz/current/deepsea.

[63] *Status of natural resources on the high seas*, op. cit., p. 60.

[64] FAO response to the questionnaire.

[65] Sea Turtle Restoration Project response to the questionnaire.

[66] See document FIRM/R738.

[67] See *Status of natural resources on the high seas*, op. cit., p. 60.

[68] A. Freiwald, J. H. Fossâ, A. Grehan, T. Koslow, J. M. Roberts, "Cold-Water Coral Reefs: Out of sight — no longer out of mind", UNEP-WCMC Biodiversity Series, No. 22, Cambridge, 2004.

[69] See A/59/62/Add.1, paras. 193-199.

[70] See *Arctic Flora and Fauna: Status and Conservation* (2001) available at http://www.caff.is.

[71] A/59/62/Add.1.

[72] See ibid., paras. 184-187.

[73] See *Status of natural resources on the high seas*, op cit., pp. 53-58.

[74] Examples in the following paragraphs are taken from Philippe Cury, Lynne Shannon and Yunne-Jai Shin, "The Functioning of Marine Ecosystems: A Fisheries Perspective", in *Responsible Fisheries in the Marine Ecosystem* (Sinclair and Valdimarsson, eds., 2003, FAO), pp. 103-123. Energy transfer in deep-water fisheries was considered at the Deep Sea 2003 Conference, op. cit.

[75] See Cury, et al., "The Functioning of Marine Ecosystems: A Fisheries Perspective", op. cit.

[76] See decision II/10 of the second Conference of the Parties to CBD.

[77] See in particular articles 5 (c), (e), (f), (g), article 6, article 14 and annex I.

[78] See article 7.

[79] Article 8.

[80] A detailed review of the provisions of the Code of Conduct relating to ecosystems and biodiversity appears in annex 1 to the FAO Technical Guidelines for Responsible Fisheries, Fisheries Management, 2: The ecosystem approach to fisheries.

[81] See Recommendations for the Marking of Fishing Gear, supplement to the report of the Expert Consultation on the Marking of Fishing Gear (Victoria, British Columbia, Canada, 14-19 July 1991), p. 48. The FAO response to the questionnaire indicated that the recommendations are likely to be republished. Lost gear can also be recovered, for example through the use of global positioning technology. Canada and Norway have implemented national gear recovery programmes.

[82] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, paras. 30 (d), 31 (d) and 30 (f).

[83] See John W. Valdemarsen and Petri Suuronen, "Modifying Fishing Gear to Achieve Ecosystem Objectives" in *Responsible Fisheries in the Marine Ecosystem* (Sinclair and Valdimarsson, eds., 2003, FAO), pp. 321-341.

[84] For example, closed areas in New Zealand to protect seamounts (see "Safeguarding undersea mountains", at http://www.fish.govt.nz/current/press/pr070900_2.htm).

[85] See article II of the Convention on the Conservation of Antarctic Marine Living Resources.

[86] See Articles 5 (c) and (d). The Agreement will enter into force following ratification by all four

of its coastal State signatories. Chile and Ecuador ratified the Agreement in 2001 and 2002, respectively.

[87] Conservation Measure 25/02 2003.

[88] Conservation Measure 42/01 2003.

[89] Resolutions 02-14 and 03-11, respectively.

[90] Resolution 01-11, which also established a voluntary freeze on levels of targeted catch of Atlantic porbeagle, shortfin mako and bluefin sharks.

[91] Most recently updated as resolution C-04-05.

[92] Resolution C-04-07.

[93] Resolutions IV and V of its 2003 meeting. Resolution V is consistent with EC regulations.

[94] See http://www.nafo.int.

[95] See http://www.itlos.org.

[96] Measure adopted under the Sea-Water Fisheries Act related to Norway's EEZ.

[97] The emergency power is available under Council Regulation (EC) No 2371/2002. A permanent designation as a special area of conservation would be under European Habitats Directive 92/43/EEC.

[98] Canada has used powers to establish MPAs under its 1997 Oceans Act. The United States 2003 Ocean Habitat Act and Deep Sea Coral Protection Act give powers to designate areas in which trawls cannot be used.

[99] See http://www.dfo-mpo.gc.ca.

[100] See http://www.unep.ch/etu/fisheries%20meeting/fishmeeting2004.htm.

[101] Information is based on the GEF reply to the 2003 questionnaire of the Division for Ocean Affairs and the Law of the Sea.

Annex I

Summary of responses to the questionnaire and list of respondents

State	Treaty status x=party; s=signatory only		RFMOs	IGOs	NGOs
	UNCLOS	Fish Stocks			
Australia	x	x	CCAMLR	FAO	Defenders of Wildlife
Azerbaijan			GFCM	OECD	Humane Society
Belize	x	s	IATTC	IMO	International Fishworkers Collective
Cambodia			ICCAT	HELCOM	International Oceans Institute
Colombia			ICES	UNEP	
Costa Rica	x	x	IPHC	IUCN	Sea Turtle Restoration Project
Croatia	x		IWC		
Denmark	x	x	NASCO		
Egypt	x	s	NEAFC		
Madagascar	x		NPAFC		
Mauritius	x	x	OLDEPESCA		
Mexico	x		WECAFC		
Myanmar	x				
New Zealand	x	x			
Oman	x				
Pakistan	x	s			
Spain	x	x			
Saint Kitts and Nevis					
United Kingdom (Overseas Territories)	x	x			
United States of America		x			
European Community	x	x			

All respondents: positive *Issue*	*States: positive responses*	*States: negative responses*	*European Community*	*RFMOs: positive responses*	*RFMOs: negative responses*	*All respondents: positive responses*	*All respondents: negative responses*
Sustainable fisheries (general)							
(For RFMOs): plan to meet World Summit on Sustainable Development target: restore maximum sustainable yield by 2015				2		2	
Legislative basis for sustainable fisheries management	14		1			15	
Legislative basis for application of precautionary approach	14	1	1				1
Party to UNCLOS		2	1			16	1
Measures to implement Fish Stocks Agreement	0						
Party to the Agreement (for RFMOs: encourage members)	8	6	1		1	9	7
Plans to ratify or accede to Agreement	3	1				3	1
Application of precautionary approach (article 6)	14	1	1	5	1	20	2
Application of ecosystem approach (article 5 (e))	6		1	5	1	13	1
Assistance to developing States in accordance with Part VII	3	1	1	2	3	6	4
Participation in RFMOs as coastal State and/or high-seas fishing State	13		1			14	
Participation in creation of new RFMOs consistent with Agreement, where none exist	10		1			11	
Application of Agreement in new RFMOs	9		1			10	
(For RFMOs): cooperation with other RFMOs							
Measures to implement FAO Compliance Agreement							
Acceptance of Agreement (for RFMOs: encourage members)	5	1	1	3	2	9	3
Plans to accept Agreement	4	1				4	1
National record of fishing vessels authorized to fish on high seas (article IV)	5	2	1	4	1	10	3
Exchange of information on national fishing vessels (article VI)	5		1			6	
Measures to implement other FAO instruments							
Code of Conduct	12	1	1	5		18	1
1999 IPOA for the Management of Fishing Capacity	10	1	1	4	2	15	3
Development of national plan (note: 2004 target)	1	2				1	2
1999 IPOA for the Conservation and Management of Sharks	8	2	1	2	2	11	4
Development of national plan (note: 2001 target)	3		1			4	
Assistance to developing States for implementation of IPOA-Sharks	2	1				2	1
Collection of scientific data on shark catches	4		1	3	2	8	2

All respondents: positive *Issue*	*States: positive responses*	*States: negative responses*	*European Community*	*RFMOs: positive responses*	*RFMOs: negative responses*	*All respondents: positive responses*	*All respondents: negative responses*
Ban on shark fishing for harvesting of shark fins	0		1	3	1	4	1
1999 IPOA for Reducing Incidental Catch of Seabirds in Longline Fisheries	8	1	1	2	2	11	3
Development of national plan (note: 2001 target)	2	1	1			3	1
2001 IPOA to Prevent, Deter and Eliminate IUU Fishing	11		1	5	1	17	1
Development of national plan (note: 2004 target)	2		1			3	
Flag-State measures to prevent vessels from fishing on high seas without authorization	5	1	1			6	1
Flag-State measures to prevent unauthorized vessels from fishing in EEZ of third country	4	1	1			5	1
2001 guidelines on responsible fisheries in marine ecosystem (Reykjavik Declaration)	4		1			5	
2003 strategy for improving information on capture fisheries	3					3	
Other measures							
Plan to ratify or accede to SEAFO Convention	3	8	1			4	8
Support for Caribbean Regional Fisheries Mechanism	1					1	
Support for African Process for the Development and Protection of the Coastal and Marine Environment	1					1	
Plan to ratify or accede to WCPFC Convention	3		1			4	
Cooperation on port-State measures through RFMOs and FAO-IMO collaboration	8		1			9	
Membership of International Monitoring Control and Surveillance Network	4	8	1			5	8
Large-scale pelagic drift-net fishing (implementation of General Assembly resolution 46/215)	9	1	1	4		14	1
Elimination of subsidies contributing to IUU fishing	3		1			4	
Reduction/elimination of by-catch (cf Fish Stocks Agreement, article 5 (f), Code of Conduct article 8.5)	9	1	1	5	1	15	2
Reduction/elimination of discards (cf Fish Stocks Agreement, article 5 (f), Code of Conduct article 8.5)	11		1	5	1	17	1
Communication of concentrations of juvenile fish	3			1	1	4	1
Research into reducing by-catch of juvenile fish	9	1	1			10	1
Participation in organizations with mandates to conserve non-target species	7		1			8	
Plans to participate in organizations with mandates to conserve non-target species	1					1	

All respondents: positive *Issue*	*States: positive responses*	*States: negative responses*	*European Community*	*RFMOs: positive responses*	*RFMOs: negative responses*	*All respondents: positive responses*	*All respondents: negative responses*
Measures to cooperate with UNEP	3	1	1	1		**5**	1
Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities	7					**7**	
Financial and/or technical assistance to developing States	5	2	1			**6**	2
[For RFMOs] implementation of vessel monitoring system scheme				3	3	**3**	3
[For RFMOs] implementation of trade measures				4	1	**4**	1
[For RFMOs] implementation of port controls scheme				3	2	**3**	2
[For RFMOs] open to new members				6		**6**	

Annex II

Recommendations of the third round of informal consultations of States parties to the Agreement

The third round of the informal consultations of States parties to the United Nations Fish Stocks Agreement recommends that the General Assembly:

(a) Urge States parties to the United Nations Fish Stocks Agreement, in accordance with article 21 (4) of the Agreement, to inform, either directly or through the relevant regional or subregional management organization or arrangement, all States whose vessels fish on the high seas in the same region or subregion of the form of identification issued by those States parties to officials duly authorized to carry out boarding and inspection functions under the provisions of articles 21 and 22 of the Agreement;

(b) Encourage regional fisheries management organizations and arrangements, and States parties that are members of or participate in such organizations and arrangements, to consider adopting conservation and management measures for fish stocks that fall under their jurisdiction but are not yet managed by them, particularly for those fish stocks that have histories of vulnerability, for which scientific data indicate are in decline and/or that are subject to an FAO international plan of action;

(c) Request the Secretary-General to convene, pursuant to article 36 of the United Nations Fish Stocks Agreement, a review conference in the first part of 2006, and to begin the necessary preparatory work and adopt budgetary decisions in this regard;

(d) Convene the fourth round of informal consultations of States parties to the United Nations Fish Stocks Agreement to consider, inter alia, issues related to the preparation for the review conference;

(e) Take note of the intention of Canada to convene a conference in St. John's, Newfoundland, in May 2005, at which some of the issues related to the United Nations Fish Stocks Agreement will be discussed;

(f) Encourage donations to the Assistance Fund established under Part VII of the United Nations Fish Stocks Agreement to assist developing States parties to that Agreement in its implementation.